Agency for Healthcare Research and Quality
Advancing Excellence in Health Care

NATIONAL QUALITY MEASURES CLEARINGHOUSE

General

Title

Heart failure in adults: percentage of patients with heart failure diagnosis and LVSD who at the last clinic visit met the following (if eligible): prescribed or were on ACEI/ARB, prescribed or were on beta-blocker therapy, and a non-smoker.

Source(s)

Pinkerman C, Sander P, Breeding JE, Brink D, Curtis R, Hayes R, Ojha A, Pandita D, Raikar S, Setterlund L, Sule O, Turner A. Heart failure in adults. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2013 Jul. 94 p. [190 references]

Measure Domain

Primary Measure Domain

Clinical Quality Measures: Process

Secondary Measure Domain

Does not apply to this measure

Brief Abstract

Description

This measure is used to assess the percentage of patients age 18 years and older with heart failure diagnosis and left ventricular systolic dysfunction (LVSD) who at the last clinic visit met the following (if eligible): prescribed or were on angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB), prescribed or were on beta-blocker therapy, and a non-smoker.

Rationale

The priority aim addressed by this measure is to increase the rate of heart failure patients age 18 years and older who receive optimum evidence-based pharmacologic treatment.

Heart failure is a major health problem in the United States (U.S.), and the incidence of the disease is increasing. The overall estimated 2004 prevalence of heart failure in adults age 20 and older in the U.S.

was 5.2 million, with it being equally distributed among men and women.

The cornerstone of treatment of systolic dysfunction is the use of beta-blockers and angiotensin-converting enzyme (ACE) inhibitors. Certain beta-blocking medications have been shown to improve clinical symptoms and ventricular function in patients with systolic dysfunction. Beta-blockers decrease hospitalizations and mortality, and have objective beneficial effect on measures of exercise duration.

ACE inhibitors prolong life in patients with heart failure symptoms and ejection fraction (EF) less than 35% and reduce symptom development in asymptomatic patients with EF less than 35%. There is also a mortality benefit in the use of ACE inhibitors in patients with recent myocardial infarction and asymptomatic EF less than 40%. ACE inhibitors slow disease progression, improve exercise capacity and decrease hospitalizations and mortality. Angiotensin receptor blockers (ARBs) are recommended for patients intolerant of ACE inhibitors.

Evidence for Rationale

Andersson B, Hamm C, Persson S, Wikstrom G, Sinagra G, Hjalmarson A, Waagstein F. Improved exercise hemodynamic status in dilated cardiomyopathy after beta-adrenergic blockade treatment. J Am Coll Cardiol. 1994 May;23(6):1397-404. PubMed

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Effect of metoprolol CR/XL in chronic heart failure: Metoprolol CR/XL Randomised Intervention Trial in Congestive Heart Failure (MERIT-HF). Lancet. 1999 Jun 12;353(9169):2001-7. PubMed

Hunt SA, Abraham WT, Chin MH, Feldman AM, Francis GS, Ganiats TG, Jessup M, Konstam MA, Mancini DM, Michl K, Oates JA, Rahko PS, Silver MA, Stevenson LW, Yancy CW, American College of Cardiology Foundation, American Heart Association. 2009 focused update incorporated into the ACC/AHA 2005 guidelines for the diagnosis and management of heart failure in adults [trunc]. J Am Coll Cardiol. 2009 Apr 14;53(15):e1-e90. [810 references] PubMed

National Health and Nutrition Examination Survey 1999 to 2004 [NHANES] Data 1999-2004. [internet]. Hyattsville (MD): National Center for Health Statistics;

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Roecker EB, Schultz MK, DeMets DL. Effect of carvedilol on survival in severe chronic heart failure. N Engl J Med. 2001 May 31;344(22):1651-8. PubMed

Packer M, Fowler MB, Roecker EB, Coats AJ, Katus HA, Krum H, Mohacsi P, Rouleau JL, Tendera M, Staiger C, Holcslaw TL, Amann-Zalan I, DeMets DL. Effect of carvedilol on the morbidity of patients with severe chronic heart failure: results of the carvedilol prospective randomized cumulative survival (COPERNICUS) study. Circulation. 2002 Oct 22;106(17):2194-9. PubMed

Packer M, Poole-Wilson PA, Armstrong PW, Cleland JG, Horowitz JD, Massie BM, Ryden L, Thygesen K, Uretsky BF. Comparative effects of low and high doses of the angiotensin-converting enzyme inhibitor, lisinopril, on morbidity and mortality in chronic heart failure. ATLAS Study Group. Circulation. 1999 Dec 7;100(23):2312-8. PubMed

Pfeffer MA, Braunwald E, Moye LA, Basta L, Brown EJ Jr, Cuddy TE, Davis BR, Geltman EM, Goldman S, Flaker GC, et al. Effect of captopril on mortality and morbidity in patients with left ventricular dysfunction after myocardial infarction. Results of the survival and ventricular enlargement trial. The SAVE Investigators. N Engl J Med. 1992 Sep 3;327(10):669-77. PubMed

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Roger VL, Weston SA, Redfield MM, Hellermann-Homan JP, Killian J, Yawn BP, Jacobsen SJ. Trends in heart failure incidence and survival in a community-based population. JAMA. 2004 Jul 21;292(3):344-50. PubMed

SOLVD Investigators. Effect of enalapril on survival in patients with reduced left ventricular ejection fractions and congestive heart failure. N Engl J Med. 1991 Aug 1;325(5):293-302. PubMed

The Cardiac Insufficiency Bisoprolol Study II (CIBIS-II): a randomised trial. Lancet. 1999 Jan 2;353(9146):9-13. PubMed

Primary Health Components

Heart failure; left ventricular systolic dysfunction (LVSD); angiotensin-converting enzyme inhibitor (ACEI); angiotensin receptor blocker (ARB); beta-blocker; smoking status

Denominator Description

Number of patients age 18 years and older with a diagnosis of heart failure and left ventricular systolic dysfunction (LVSD) (see the related "Denominator Inclusions/Exclusions" field)

Numerator Description

Number of patients 18 years and older with a diagnosis of heart failure and left ventricular systolic dysfunction (LVSD) who were prescribed or were taking angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB), beta-blocker therapy and a non-smoker

Evidence Supporting the Measure

Type of Evidence Supporting the Criterion of Quality for the Measure

A clinical practice guideline or other peer-reviewed synthesis of the clinical research evidence

Additional Information Supporting Need for the Measure

- In age 20 to 39, the incidence of heart failure is 0.3% of the population in men and 0.2% of the population in women. In the ages 40s and 50s, the incidence is 2% in men and 1.5% in women. In the 60 to 79 age group, the incidence is 7.2% in men and 5.2% in women. However, once reaching age 80, the incidence of heart failure is higher in women, with 11.6% of men and 12.4% of women.
- Seventy-five percent of heart failure cases have antecedent hypertension in that the lifetime risk for heart failure doubles for people with blood pressure greater than 160/90 versus those with blood pressure less than 140/90. A community-based cohort study conducted in Olmsted County, Minnesota, showed that the incidence of heart failure (International Classification of Diseases, Ninth Revision [ICD9]-428) has not declined during the past two decades, but survival after onset has increased overall, with less improvement among women and elderly persons.

Evidence for Additional Information Supporting Need for the Measure

National Health and Nutrition Examination Survey 1999 to 2004 [NHANES] Data 1999-2004. [internet]. Hyattsville (MD): National Center for Health Statistics;

Pinkerman C, Sander P, Breeding JE, Brink D, Curtis R, Hayes R, Ojha A, Pandita D, Raikar S, Setterlund L, Sule O, Turner A. Heart failure in adults. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2013 Jul. 94 p. [190 references]

Roger VL, Weston SA, Redfield MM, Hellermann-Homan JP, Killian J, Yawn BP, Jacobsen SJ. Trends in heart failure incidence and survival in a community-based population. JAMA. 2004 Jul 21;292(3):344-50. PubMed

Extent of Measure Testing

Unspecified

National Guideline Clearinghouse Link

Heart failure in adults.

State of Use of the Measure

State of Use

Current routine use

Current Use

not defined yet

Application of the Measure in its Current Use

Measurement Setting

Ambulatory/Office-based Care

Professionals Involved in Delivery of Health Services

not defined yet

Least Aggregated Level of Services Delivery Addressed

Clinical Practice or Public Health Sites

Statement of Acceptable Minimum Sample Size

Unspecified

Target Population Age

Age greater than or equal to 18 years

Target Population Gender

Either male or female

National Strategy for Quality Improvement in Health Care

National Quality Strategy Aim

Better Care

National Quality Strategy Priority

Prevention and Treatment of Leading Causes of Mortality

Institute of Medicine (IOM) National Health Care Quality Report Categories

IOM Care Need

Living with Illness

IOM Domain

Effectiveness

Data Collection for the Measure

Case Finding Period

The time frame pertaining to data collection is quarterly.

Denominator Sampling Frame

Patients associated with provider

Denominator (Index) Event or Characteristic

Clinical Condition

Encounter

Patient/Individual (Consumer) Characteristic

Denominator Time Window

not defined yet

Denominator Inclusions/Exclusions

Inclusions

Number of patients age 18 years and older with a diagnosis of heart failure* and left ventricular systolic dysfunction (LVSD)**

Data Collection: Query electronic medical records (EMR) for clinic visits within the last 12 months for patients age 18 years and older with heart failure diagnosis and LVSD. Determine if patients meet any exclusion criteria. For patients who meet exclusion criteria, exclude them from the analysis.

*International Classification of Diseases, Ninth Revision (ICD-9) codes: 428.0, 428.1, 428.20, 428.21, 428.22, 428.23, 428.40, 428.41, 428.42, 428.43, 428.9. (Refer to the table "Descriptions of ICD-9 Codes" in the original measure documentation for code descriptions.)

**LVSD is defined quantitatively as left ventricular ejection fraction less than 40%, and qualitatively as moderately or severely depressed left ventricular systolic function.

Exclusions

- Patients less than 18 years of age
- Patients with potential contraindications or other reasons for the provider to not prescribe an angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB) and/or beta-blocker (refer to the original measure documentation for a complete list)
- Patients transferred to another care system
- Patients with devices
- Deceased patients

Exclusions/Exceptions

not defined yet

Numerator Inclusions/Exclusions

Inclusions
Number of patients 18 years and older with a diagnosis of heart failure and left ventricular systolic dysfunction (LVSD) who were prescribed or were taking angiotensin-converting enzyme inhibitor (ACEI)/angiotensin receptor blocker (ARB), beta-blocker therapy and a non-smoker

Exclusions
Unspecified

Numerator Search Strategy

Encounter

Data Source

Administrative clinical data

Electronic health/medical record

Type of Health State

Does not apply to this measure

Instruments Used and/or Associated with the Measure

Unspecified

Computation of the Measure

Measure Specifies Disaggregation

Does not apply to this measure

Scoring

Rate/Proportion

Interpretation of Score

Desired value is a higher score

Allowance for Patient or Population Factors

not defined yet

Standard of Comparison

not defined yet

Identifying Information

Original Title

Percentage of patients with heart failure diagnosis and LVSD who at the last clinic visit met the following (if eligible): prescribed or were on ACEI/ARB, prescribed or were on beta-blocker therapy, and a non-smoker.

Measure Collection Name

Heart Failure in Adults

Submitter

Institute for Clinical Systems Improvement - Nonprofit Organization

Developer

Institute for Clinical Systems Improvement - Nonprofit Organization

Funding Source(s)

The Institute for Clinical Systems Improvement's (ICSI's) work is funded by the annual dues of the member medical groups and five sponsoring health plans in Minnesota and Wisconsin.

Composition of the Group that Developed the Measure

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Financial Disclosures/Other Potential Conflicts of Interest

The Institute for Clinical Systems Improvement (ICSI) has long had a policy of transparency in declaring potential conflicting and competing interests of all individuals who participate in the development, revision and approval of ICSI guidelines and protocols.

In 2010, the ICSI Conflict of Interest Review Committee was established by the Board of Directors to

review all disclosures and make recommendations to the board when steps should be taken to mitigate potential conflicts of interest, including recommendations regarding removal of work group members. This committee has adopted the Institute of Medicine Conflict of Interest standards as outlined in the report Clinical Practice Guidelines We Can Trust (2011).

Where there are work group members with identified potential conflicts, these are disclosed and discussed at the initial work group meeting. These members are expected to recuse themselves from related discussions or authorship of related recommendations, as directed by the Conflict of Interest committee or requested by the work group.

The complete ICSI policy regarding Conflicts of Interest is available at the ICSI Web site .

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Research Grants: None
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Research Grants: None
Financial/Non-Financial Conflicts of Interest: None

Adaptation

This measure was not adapted from another source.

Date of Most Current Version in NQMC

2013 Jul

Measure Maintenance

Scientific documents are revised every 12 to 24 months as indicated by changes in clinical practice and literature.

Date of Next Anticipated Revision

The next scheduled revision will occur within 24 months.

Measure Status

This is the current release of the measure.

This measure updates a previous version: Institute for Clinical Systems Improvement (ICSI). Heart failure in adults. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2011 Aug. 110 p.

The measure developer reaffirmed the currency of this measure in January 2016.

Measure Availability

Source available for purchase from the Institute for Clinical Systems Improvement (ICSI) Web site . Also available to ICSI members for free at the ICSI Web site and to Minnesota health care organizations free by request at the ICSI Web site .

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NQMC Status

This NQMC summary was completed by ECRI on November 29, 2006.

This NQMC summary was updated by ECRI Institute on December 16, 2007 and on July 1, 2010.

This NQMC summary was retrofitted into the new template on July 25, 2011.

This NQMC summary was updated by ECRI Institute on October 16, 2012 and again on October 14, 2013.

The information was reaffirmed by the measure developer on January 13, 2016.

Copyright Statement

Production

Source(s)

Pinkerman C, Sander P, Breeding JE, Brink D, Curtis R, Hayes R, Ojha A, Pandita D, Raikar S, Setterlund L, Sule O, Turner A. Heart failure in adults. Bloomington (MN): Institute for Clinical Systems Improvement (ICSI); 2013 Jul. 94 p. [190 references]

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